

PATENT SPECIFICATION

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(54) SELF-TAPPING SCREW-THREADED MEMBERS

(71) I, ARTHUR DERRICK BARNS-DALE, a British Subject of "Alne Cote", Great Alne, Near Alcester, Warwickshire, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to self-tapping screw threaded members more particularly but not exclusively, screw thread inserts and is concerned with such members of the kind in which the external thread form is fluted or grooved to provide a cutting edge or edges. The object of the invention is to provide such a member or insert having an improved formation of fluting or grooving.

According to this invention a screw threaded member or insert of the kind referred to is characterised by the or each flute or groove in the external thread form of the member or insert being defined by a pair of mutually perpendicular planar side walls which are uninterrupted in the axial direction over their entire length, whereby one wall of the or each flute or groove runs out into the thread form from a cutting face provided by the other wall.

In practice and as applied to a screw thread insert, the construction and arrangement is as follows, reference being had to the accompanying drawings in which:—

FIGURES 1 and 2 are plan and side elevations of the insert, and

FIGURE 3 is a perspective view.

These drawings are identical with those accompany the Provisional specification.

In the usual manner the insert 1 is of tubular form having an external thread 2 for securing it in position of use in a hole in parent material e.g. of a component, the insert having an internal threaded bore 3 for receiving a screw or other threaded member. However the bore may be plain for location purposes or the insert may be of male form as referred to hereafter.

In the example shown the insert is provided with three equi-spaced straight flutes 10 extending for the full length of the

insert but the number of flutes may be varied according to requirements whilst the or each flute 10 may only extend for part of the length of the insert. Furthermore the or each flute may be inclined in relation to the axis of the insert 1.

The cross section of each flute 10 is of L-form (see FIGURE 1), being defined by a pair of mutually perpendicular planar side walls 11 and 12. The wall 11 of the flute 10 runs out into the external thread form 2 from the substantially radially directed wall 12 of the flute which provides the cutting edge 13. The side walls 11 and 12 are uninterrupted in the axial direction over their entire length.

Thus in the case of the right hand threaded insert 1 shown and as it is rotatably driven into a hole in parent material, the run-out of the wall 11 of each flute 10 provides adequate relief or clearance for engagement of the cutting edge 13 with the parent material and also provides ample space for accommodating material cut away.

As will be appreciated the L-form flutes 10 would be oppositely directed in the case of a left hand external thread 2.

The forward end of the insert 1 which enters the hole is provided with a lead such as by taper reduction of the external thread form 2 at 20 and/or by the provision of a pilot 21 which, as indicated, may be of plain form. The maximum depth of the flute 10 i.e. at the wall 12 should be such that the strength of the wall of the insert 1 is not unduly weakened having regard to its thickness.

Whereas the invention has particular practical application to screw thread inserts as above described, it is also capable of application to male screw threaded members such as screws or studs especially male screw thread inserts comprising a fluted threaded portion for self-tapping screwing into a hole and a stud portion at least part of which may be threaded.

Owing to the capacity for accommodating material cut away, the L-section fluting 10 enables long self-tapping screw threaded

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members or inserts to be installed without risk of jamming due to accumulation of cut away material and especially where a coarse external thread form is employed.

- 5 If desired, a sharp V-form external thread may be employed having a truncated root, or a buttress thread form may be used particularly for high resistance to pull out.

WHAT I CLAIM IS:—

- 10 1. A screw threaded member or insert of the kind referred to, characterised by the or each flute or groove in the external thread form of the member or insert being defined by a pair of mutually perpendicular planar
15 side walls which are uninterrupted in the axial direction over their entire length, whereby one wall of the or each flute or groove runs out into the thread form from a cutting face provided by the other wall.

2. A screw threaded member or insert according to claim 1 wherein the cutting face of the or each flute or groove is substantially radially directed in relation to the axis of the screw threaded member or insert.

3. A screw threaded member or insert according to claim 1 or 2 wherein the fluted or grooved external thread is of V-form having a truncated root.

4. A screw threaded member or insert substantially as herein described with reference to the accompanying drawings.

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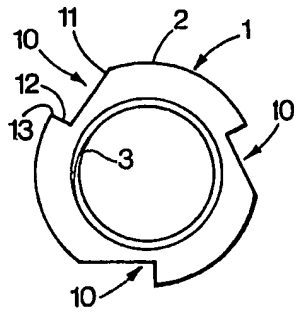


FIG. 1

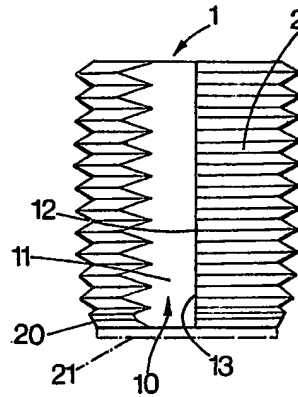


FIG. 2

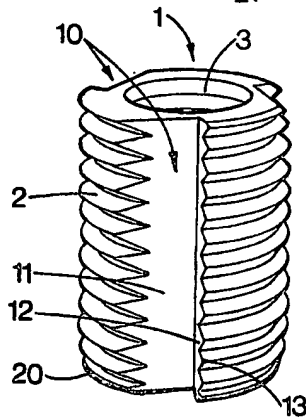


FIG. 3